DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
PREDATOR DAMAGE MANAGEMENT IN NEBRASKA
FOR THE PROTECTION OF LIVESTOCK, WILDLIFE, PROPERTY, AND PUBLIC HEALTH AND SAFETY

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program responds to a variety of requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions are categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an Environmental Assessment (EA) was prepared. The Pre-Decisional EA, released by WS in June 1999, documented the need for predator damage management in Nebraska and assessed potential impacts of various alternatives for responding to damage problems. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on all lands in Nebraska to protect livestock, public health and safety, property and wildlife from predator damage, as requested by the resource owner/administrator as appropriate.

The EA analyzes the potential environmental and social effects of preventing or resolving damage related to the protection of livestock, wildlife, property, and to safeguard public health and safety from predators on private and public lands in Nebraska. In Fiscal Year (FY) 98, Nebraska WS had agreements to conduct predator damage management on about 5% of the land area of Nebraska (MIS 1998). Comments from public involvement letters and from the Pre-Decisional EA were reviewed for substantive issues and alternatives which were considered in developing this Decision. The analysis and supporting documentation are available for review at the USDA-APHIS-WS State Office, P.O. Box 81866, Lincoln, Nebraska 68501-1866.

WS is the federal program authorized and directed by law to reduce damage caused by wildlife (Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c). Wildlife damage management is the alleviation of damage or problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an IWDM approach, commonly known as Integrated Pest Management in which a combination of methods may be used or recommended to reduce damage. WS' wildlife damage management is not based on punishing offending animals, but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1994). The imminent threat of damage or loss of resources is deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Livestock producers and wildlife management agencies have requested WS to conduct predator damage management to protect livestock, wildlife, and threatened and endangered (T&E) species in Nebraska. All Nebraska WS wildlife damage management is in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act (ESA) of 1973.

WS cooperates with the U.S. Forest Service (USFS), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Nebraska Game and Parks Commission (NGPC), Nebraska Department of Agriculture (NDA), Nebraska Health and Human Services System and the Nebraska Cooperative Extension to reduce wildlife damage. The NGPC has the responsibility to manage all wildlife in Nebraska, including federally listed T&E species and migratory birds, which is a joint responsibility with the USFWS. Memoranda of Understanding (MOUs) signed

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[1] The WS Policy Manual provides WS personnel guidance in the form of program directives. Information contained in the WS Policy Manual and its associated directives has been used throughout this Decision, but has not been cited in the text or referenced in the Literature Cited.

between APHIS-WS and the USFS, BLM, NGPC and NDA clearly outline the responsibility, technical expertise and coordination between agencies. The MOUs with the USFS and BLM provide guidance for compliance with NEPA and the basis for the interdisciplinary process used to develop the EA. A Multi-agency Team with representatives and advisors from each of the cooperating agencies convened and reviewed the EA to assess the impacts of WS' predator damage management in Nebraska. The USFS and BLM cooperated with Nebraska WS to determine whether the proposed action is in compliance with relevant laws, and USFS or BLM regulations, policies, orders, and procedures. All Nebraska WS wildlife damage management is conducted consistent with the ESA and the Section 7 Consultation with the USFWS.

Within Nebraska, cattle, sheep and goats are permitted to graze on federal lands administered by the USFS and BLM, and on state and private lands. As proposed in the EA, WS would implement a program that protects livestock, wildlife, property, and public health and safety, as requested and appropriate, on all lands in Nebraska.

A Pre-Decisional EA was prepared and released to the public for a 40-day comment period. A Notice of Availability of the Pre-Decisional EA was also published in six newspapers in Nebraska. A total of seven comment letters were received in response to the Pre-Decisional EA. Documentation of the public involvement effort, including comment letters and specific responses to all the issues identified in those letters, is available for public review at the WS State Director's Office, P. O. Box 81866, Lincoln, NE 68501-1866. Although most of the comments raised were already addressed in the EA, responses to some are presented below.

1. The geographic area covered by the EA was too large, and an EIS should be prepared.

Two purposes for preparing this EA are to comply with NEPA and determine if this federal proposal could have a significant impact on the quality of the human environment requiring the preparation of an EIS (40 CFR 1501.3 and 1501.4). As stated on page 1-4 of the EA, APHIS NEPA implementing procedures allow individual wildlife damage management actions of the kinds described in the EA to be categorically excluded from the requirements for preparation of either an EIS or EA (7 CFR 372.5 (c), 60 Fed. Reg. 6,000-6,003, 1995). However, in order to determine significance, WS analyzed the proposed action and alternatives against the issues that were raised during the interdisciplinary and public involvement processes. In determining significance, WS looked at the *context* of the issues and *intensity* of the impact (40 CFR 1508.27). WS, as well as other professional wildlife agencies, are aware that the damage situation with each individual predator may change at any time in any location; wildlife populations are dynamic and mobile. The extent of predator populations are seldom a few acres or household, but rather over a much larger area, and WS' actions generally are conducted on a much smaller portion of the habitat inhabited by the target species. In FY 1998, Nebraska WS had agreements to conduct predator damage management on only about 5% of Nebraska's lands, and analysis in the EA shows that WS's impacts on predator populations are of a low magnitude. In addition, before any WS wildlife damage management is conducted, an *"Agreement for Control"* must be signed by the landowner or administrator for private lands and WS Work Plans or other comparable documents are in place for public lands. All wildlife damage management that would take place in Nebraska by WS would be in compliance with relevant laws, regulations, policies, orders, and procedures, including the ESA.

WS' mission is to reduce wildlife damage, not wildlife, and in this EA and Decision, WS recognizes that predators have no *intent* to do harm. They inhabit (i.e., reproduce, walk, forage, etc.) habitats where they can find a *niche*. If they do *"wrongs,"* people characterize this as damage. *Wrongs*, unfortunately, are determined not merely in spacial terms but also with respect to time and other circumstances that define the *wrongness* (i.e., a predator living away from people may not be a problem, while one killing livestock or threatening people is causing damage or could cause human health and safety concerns). WS has prepared an EA that provides as much information as possible to address the context and the intensity of damage management actions and the estimated predator population impacts that could be involved in causing damage or threats to human interests and needs.

In addition, as noted on page 1-5 of WS' EA, an EA was prepared by the USFS to assess the potential impacts of WS' predator damage management activities on the Nebraska National Forest and associated Units. This EA resulted in a Finding of No Significant Impact (FONSI). WS' EA also assessed the impacts of WS' predator damage management in Nebraska, and it has similarly resulted in a FONSI. The WS program has determined that an EIS is not required

and that preparation of an EA for the Nebraska WS program complies with NEPA, the Council on Environmental Quality NEPA implementing regulations (40 CFR 1500), and with APHIS NEPA implementing regulations (7 CFR 372).

2. WS' removal of coyotes may increase livestock depredation problems.

The issue here is whether removing coyotes exacerbates livestock losses by: 1) encouraging immigration of other coyotes, and/or 2) increasing coyote numbers through compensatory reproduction. The commenter cited a letter from Dr. Crabtree. Dr. Crabtree's letter was reviewed and discussed with Dr. Fred Knowlton and Dr. Eric Gese of the National Wildlife Research Center, both of whom have extensive research backgrounds in coyote population ecology and management. Both questioned Dr. Crabtree's conclusions about whether the factors identified translate into higher predation losses and were unaware of any scientific data to support such a conclusion. Both also stated that, to their knowledge, Dr. Crabtree has not published any data to support the conclusions. On the contrary, research on lamb and sheep losses with restricted or no predator damage management show that coyote damage management is effective in reducing losses. This was supported by a review by the Government Accounting Office which concluded that, *"according to available research, localized lethal controls have served their purpose in reducing predator damage"* (GAO 1990). Analysis contrary to Dr. Crabtree's conclusion is presented in Knowlton et al. (1999), and in part, is summarized below.

The commenter's argument was also raised in *Southern Utah Wilderness Alliance* v. *Thompson* (U.S. District Court of Utah 1993) and addressed by Connolly (1992) during that court case. What happens in an unexploited coyote population bears little relevance to the situation in Nebraska or in most other areas of the U.S. As noted in the EA, coyote populations in Nebraska are subject to mortality not only from WS, but also from natural mortality, private trappers and hunters as well as ranchers protecting their stock. Without a federal WS program, private fur harvest and predator damage management efforts would still likely be carried out by other entities. The *status quo* for coyote populations in Nebraska is human-caused mortality of more than 36,000 coyotes killed per year in recent years (statewide), not including those killed by the Nebraska WS program (NGPC unpubl. data).

Mortality in coyote populations can range from 19-100% with 40-60% mortality most common. Several studies of coyote survival rates, which include calculations based on the age distribution of coyote populations, show typical annual survival rates of 45-65% for adult coyotes. High mortality rates have also been shown in four telemetry studies involving 437 coyotes that were older than 5 months of age; 47% of the marked animals are known to have died (USFWS 1978). Mortality rates among *"unexploited"* coyote populations were reported to be between 38-56%. Thus, most coyote populations, even those that are not subjected to damage management, have high mortality rates which are not stable. Furthermore, in studies where reported coyote mortality was investigated, only 14 of 326 recorded mortalities were due to WS activities (USFWS 1978).

Coyotes in areas of lower population densities may reproduce at an earlier age and have more off spring per litter (Knowlton 1972, Davison 1980, Andelt 1987), however, these same populations generally sustain higher mortality rates. Therefore, the overall population of the area does not substantially change. In addition, the number of breeding coyotes does not substantially increase in the absence of exploitation and individual coyote territories produce one litter per year independent of the population being exploited or unexploited (Knowlton et al. 1999). Connolly and Longhurst (1975) demonstrated that coyote populations in exploited and unexploited populations do not increase at significantly different rates and that an area will only support a population to its carrying capacity.

Dispersal of *"surplus"* coyotes is the main factor that keeps coyote populations distributed throughout their habitat. Such dispersal of subdominant animals removes surplus animals from higher density areas and repopulates areas where reductions have occurred. Two studies (Connolly et al. 1976, Gese and Grothe 1995) investigated the predatory behavior and social hierarchy of coyotes, and determined that the more dominant (alpha) animals initiated attacks and killed most of the prey items. Connolly et al. (1976) concluded that the inclination of individuals to attack seemed related to their age and relationship with conspecifics. The coyotes that attacked sheep most frequently were 2-year-old males and females paired with these males. Gese and Grothe (1995) concluded from observing wild coyotes that the dominant pair was involved in the vast majority of predation attempts. The alpha male was the main aggressor in

all successful kills, even when other pack members were present. Thus, it would appear that removal of local established territorial coyotes actually removes the individuals that are most likely to kill livestock and can result in the immigration of young/subdominant coyotes that are less likely to kill livestock.

WS is unaware of any scientific data that would prove speculation about unexploited coyote populations posing less risk to livestock than exploited populations. Windberg et al. (1997a) noted that 65% of the coyotes exposed to a herd of goats fed upon them even though the goats were present for only 21 days. Windberg (1997b) reported that a high incidence of coyote predation on goats during their study with an unexploited coyote population was contrary to Dr. Crabtree's hypothesis. They found no statistically significant difference between territorial and transient coyotes in the proportion of each type that consumed Angora goats and concluded that management measures to protect livestock during periods of exposure of highly vulnerable kid goats or lambs may be best directed at local coyote populations rather than at particular cohorts or individuals. Their study supports the belief that removal of coyotes from a local population without regard for age or territoriality is advisable in many situations and would not result in a worsening of predation problems on more vulnerable types of livestock such as Angora goats. Wagner and Conover (1999) found that total lamb losses declined 25% on grazing allotments in which coyotes were removed by winter aerial hunting 5-6 months ahead of summer sheep grazing, whereas total lamb losses only declined 6% on allotments that were not aerial hunted. Confirmed losses to coyotes declined by 7% on aerial hunted allotments, but increased 35% on allotments receiving no aerial hunting (Wagner and Conover 1999). This study provides evidence that coyote removal even several months ahead of the arrival of livestock can be effective in reducing predation losses, and that such removal does not result in increased losses. In addition, Wagner (1988) presented evidence of a positive association between coyote densities and predation losses of sheep.

In FY 1998, Nebraska WS had agreements to conduct predator damage management on only about 5% of Nebraska's lands. All wildlife damage management that would take place in Nebraska by WS would be in compliance with relevant laws, regulations, policies, orders, and procedures, including the ESA. In addition, the EA also noted that without a federal WS program, coyote damage management efforts would still likely be carried out by another entity. WS only takes a small percentage of the coyote population and then only depredating coyotes or coyotes considered to be causing a threat.

3. Concern about the aesthetics of predators in native ecosystems.

The human attraction to animals has been well documented throughout history and probably started when humans began domesticating animals. The American public is no exception and today most households have pets. However, some people may consider individual wild animals and birds as *"pets"* or exhibit affection toward these animals, especially people who enjoy coming in contact with wildlife. Interactions between people and wildlife in the urban, suburban and rural environment continue to increase (Craven et al. 1998). Many of these encounters are positive and eagerly sought by people and thus provide support for the wildlife resource. Wildlife generally is regarded as providing economic, recreational, and aesthetic benefits (Decker and Goff 1987), and the mere knowledge that wildlife exists is a positive benefit to many people. However, many are also considered a nuisance or damage problem, especially in the urban environment (Craver et al. 1998). The public reaction is generally variable and mixed to wildlife damage management because philosophical, aesthetic, and personal attitudes, values, and opinions about the best ways to manage conflicts/problems between humans and wildlife are numerous. Therefore, aesthetics is truly subjective in nature and dependent on the observer's point of view. In addition, increased urbanization, increased populations of "urban" wildlife, and decreased funding for agency animal damage control programs have all contributed to increased demand for wildlife damage management (Barnes 1994).

Wildlife populations provide a range of social and economic benefits (Decker and Goff 1987). These include direct benefits related to consumptive and non-consumptive use (e.g., wildlife-related recreation, observation, harvest, sale), indirect benefits derived from vicarious wildlife related experiences (e.g., reading, television viewing), and the personal enjoyment of knowing wildlife exists and contributes to the stability of natural ecosystems (e.g., ecological, existence, bequest values) (Bishop 1987). Direct benefits are derived from a user's personal relationship to animals and may take the form of direct consumptive use (using up the animal or intending to) or non-consumptive use (viewing the animal in nature or in a zoo, photography) (Decker and Goff 1987). Indirect benefits or indirect

exercised values arise without the user being in direct contact with the animal and come from experiences such as looking at photographs and films of wildlife, reading about wildlife, or benefitting from activities or contributions of animals such as their use in research (Decker and Goff 1987). Indirect benefits come in two forms: bequest and pure existence (Decker and Goff 1987). Bequest is providing for future generations and pure existence is merely knowledge that the animals exist (Decker and Goff 1987).

IWDM provides relief from damage or threats to public health or safety to people who would have no relief from such damage or threats if non-lethal methods were ineffective or impractical. Many people directly affected by problems and threats to public health or safety caused by predators insist upon their removal when they cause damage. Some people have an idealistic view and believe that all wildlife should be captured and relocated to another area to alleviate damage or threats to public health or safety. Some people directly effected by the problems caused by wildlife strongly support removal. Individuals not directly affected by the harm or damage may be supportive, neutral, or totally opposed to any removal of wildlife from specific locations or sites. Others totally opposed to predator damage management want WS to teach tolerance for predator damage and threats to public health or safety, and that wildlife should never be killed. Some people who oppose removal of wildlife do so because of human-affectionate bonds with individual wildlife. These human-affectionate bonds are similar to attitudes of a pet owner and result in aesthetic enjoyment.

Nebraska WS only conducts predator damage management at the request of the affected property owner or resource manager. In FY 1998, Nebraska WS had agreements to conduct predator damage management on only about 5% of Nebraska's lands. In addition, the EA also noted that without a federal WS program, coyote damage management efforts would still likely be carried out by another entity. WS only takes a small percentage of the coyote population and then only depredating coyotes or coyotes considered to be causing a threat. If WS received requests from an individual or official for predator damage management, WS would address the issues/concerns and consideration would be made to explain the reasons why the individual predator damage management actions would be necessary. Management actions would be carried out in a caring, humane, and professional manner.

4. Nebraska WS program is not cost effective and that WS wildlife damage management does not affect livestock losses.

NEPA does not require preparation of a specific cost:benefit analysis, and consideration of this issue is not essential to making a reasoned choice among the alternatives being considered. A cost:benefit analysis of WS activities as conducted back in the decades of widespread toxicant use would likely show a much higher benefit per unit cost than predator damage management programs as currently practiced. Although toxicants were cheap and very effective at keeping predator numbers and predator losses low, concerns about some environmental impacts of their use were valid. Our social value system has essentially established limits on how cost-effectively wildlife damage management can be conducted. As restrictions on the use of damage management methods increase, cost-effectiveness of damage management is reduced.

Many critics divide the cost of predator damage management by the number of animals taken and determine that the average cost per animal maybe several hundred dollars (O'Toole 1994). Advocates of this viewpoint have suggested that it would make more sense from an economic standpoint to pay a bounty on coyotes or compensation to ranchers. Bounties simply encourage harvest of more coyotes at times and in places when coyotes are easiest and cheapest to harvest and many damage problems occur at times and in places where it is difficult to remove the depredating animals and thus more expensive than what a bounty would pay (Collinge and Maycock 1997). Compensation programs have many drawbacks including: 1) neither the State of Nebraska nor U. S. Congress have authorized such payments, 2) it would require larger expenditures of money and workforce to investigate and validate all losses to determine and administer appropriate compensation, 3) compensation would most likely be below full market value, 4) it is difficult to make timely responses to all requests to assess and confirm losses and many losses could not be verified, 5) compensation would give little incentive to resource owners to limit predation through improved animal husbandry practices and other management strategies, and 6) not all ranchers would rely completely on a compensation program and unregulated lethal control of predators would most likely continue as permitted by state law.

WS addressed need using an analysis of studies that assessed predation when wildlife damage management was present and when it was not as cited in USDA (1994, Chapter 4) and the EA. When wildlife damage management was absent, livestock producers suffered greater losses from predators (Nass 1977, Howard and Shaw 1978, Howard and Booth 1981, O'Gara et al. 1983). In addition, WS is also authorized and directed by law to protect agricultural resources (Animal Damage Control Act of 1931 (46 Stat. 1486; 7 U.S.C. 426-426c), the Rural Development, Agriculture and Related Agencies Appropriations Act of 1988). To fulfill these directives, wildlife damage management is conducted to prevent or minimize damage and protect resources while complying with strict measures to ensure public safety as well as the protection of domestic animals, non-target and T&E species.

Several studies have determined a cost:benefit of predator damage management programs and have limited their analyses to quantifiable values. The analyses did not include a number of values that would be difficult to measure, such as: 1) harassment of livestock resulting in restricted feeding patterns (Collinge and Maycock 1997), 2) increased labor costs to find and herd livestock scattered by predators (Wagner 1988), and 3) increased range damage related to tighter herding (Wagner 1988). In addition, Knowlton (1989) suggested that increased abundance of natural prey cause an increase in the coyote population which resulted in greater predation on sheep. When natural densities of prey declined, coyote densities were still high and predation on sheep escalated sharply.

USDA (1994) cited several studies where sheep losses to predators were documented when no damage management program was in place (Henne 1977, Delorenzo and Howard 1976, Munoz 1977, McAdoo and Klebenow 1978). Annual predation loss rates during these studies varied from 6.2-28.8% for lambs and 0.9-7.5% for adult sheep. Other studies show that sheep and lamb losses are reduced with a predator damage management program in place. Nass (1977), after three years of monitoring, determined that sheep and lamb losses averaged 1.3% and 2.3%, respectively. Taylor et al. (1978) showed that adult sheep and lamb losses were 0.0% and 5.4%, respectively, after three years of monitoring. Tigner and Larsen (1977) determined sheep and lamb losses to be 0.5% and 4.2% respectively. Loss surveys conducted through questionnaires also indicate that predation is reduced when a predator damage management program is in place (Early 1974, Early et al. 1974, Neese et al. 1976).

Cost-effectiveness of various damage management strategies can vary greatly depending on a variety of factors. Effectiveness of aerial hunting efforts can vary with the presence or absence of fresh snow, as well as the use of a ground crew, prior use of draw stations to attract coyotes, and other factors. USDA (1994) suggests a 1:2.4 cost:benefit ratio for predator damage management efforts to protect sheep in the western United States. Wagner (1997) suggested a 1:2.6 cost:benefit ratio for helicopter aerial hunting efforts to protect sheep in Utah and Idaho. Thompson (1976) suggested a 1:3.9 cost:benefit ratio with trapping as the primary damage management method, and Pearson and Caroline (1981) estimated a cost:benefit ratio of 1:4.5 for predator damage management during a one-year analysis. Connolly (1981) suggested a 1:7.0 cost:benefit ratio for government predator damage management in the western Unites States. Predator damage management efforts may not be cost-effective in every instance, but this may be due to the need to address social or environmental concerns that are difficult to quantify in economic terms (Collinge and Maycock 1997).

5. The EA fails to provide any detailed information about livestock distribution on public and private lands, stocking rates, livestock losses due to other factors.

The *"Predator Damage Management in Nebraska for the Protection of Livestock, Wildlife, Property, and Public Health and Safety"* EA was developed to assess the impact of WS' damage management program on predators in Nebraska. The distribution and stocking rates of livestock on public and private lands are outside the scope of the WS EA. Livestock distribution and stocking rates on public lands are addressed in other land and resource management plans and those documents are available from the resource or land management agencies responsible for administering grazing programs.

Livestock losses for reasons other than predation are not wildlife damage and are also outside the scope of the EA. WS is authorized and directed by the Animal Damage Control Act of 1931 as amended (7 U.S.C. 426-426c, Stat. 1468) and the Rural Development, Agriculture and Related Agencies Appropriated Act, (Public Law 100-202, Dec. 22, 1987. Stat 1329-1331, 7 U.S.C. 426c) to protect natural and agricultural resources, property, and safeguard public

health and safety. Furthermore, a recent court decision determined that the mere threat of wildlife damage is reason enough to establish a WS program (U.S. District Court of Utah 1993). Information on livestock losses due to other factors is, however, compiled and available from the USDA, National Agricultural Statistics Service.

6. Only scientific literature supporting the continuation or escalation of the current ADC program is discussed.

The *Predator Damage Management in Nebraska for the Protection of Livestock, Wildlife, Property, and Public Health and Safety* EA was developed to assess the need for a damage management program and impact of WS' damage management program on predators in Nebraska. Alternative 1, the No Action (Continue the current Nebraska WS program) Alternative was used as a baseline for comparing the effects of the other alternatives as required by 40 CFR 1502.14(d). The EA was developed after soliciting input from the public through a public involvement letter and public notices, and a Pre-Decisional EA was made available to the public to clearly communicate the proposed action and analysis. Any recommended references, from the public review and comment periods, were evaluated to determine their relevance to the analysis and considered during the development of this Decision.

As previously noted, research on lamb and sheep losses with restricted or no predator damage management show that coyote damage management is effective in reducing losses without adversely impacting predator populations. This was supported by a review of the GAO (1990) which concluded that, *"according to available research, localized lethal controls have served their purpose in reducing predator damage"* and *"according to available information, the number of predators killed under ADC programs has not threatened statewide predator populations"*. In addition, Windberg et al. (1997a) noted that 65% of the coyotes exposed to a herd of goats fed upon them even though the goats were present for only 21 days. Windberg (1997b) reported that a high incidence of coyote predation on goats during their study was from an unexploited coyote population. They found no statistically significant difference between territorial and transient coyotes and concluded that management measures to protect livestock during periods of exposure of highly vulnerable kid goats or lambs may be best directed at local coyote populations rather than at particular cohorts or individuals. Their study supports the belief that removal of coyotes from a local population without regard for age or territoriality is advisable in many situations and would not result in a worsening of predation problems on more vulnerable types of livestock. Confirmed losses to coyotes declined by 7% on aerial hunted allotments, but increased 35% on allotments receiving no aerial hunting (Wagner and Conover 1999). This study provides evidence that coyote removal even several months ahead of the arrival of livestock can be effective in reducing predation losses and that such removal does not result in increased losses. Furthermore, Wagner (1988) presented evidence of a positive association between coyote densities and predation losses of sheep. The impact analysis in Chapter 4 of the EA clearly shows that the Nebraska WS program only contributes a small percentage to the known mortality of predators in Nebraska and that removal of predators reduces predator losses to the citizens of Nebraska.

In addition, USDA (1994) cited studies where sheep losses to predators were documented when no damage management program was in place (Delorenzo and Howard 1976, Henne 1977, Munoz 1977, McAdoo and Klebenow 1978). Annual predation loss rates during these studies varied from 6.2-28.8% for lambs and 0.9-7.5% for adult sheep. Other studies show that sheep and lamb losses are reduced with a predator damage management program in place. Nass (1977), after three years of monitoring, determined that sheep and lamb losses averaged 1.3% and 2.3%, respectively. Taylor et al. (1978) showed that adult sheep and lamb losses were 0.0% and 5.4%, respectively, after three years of monitoring. Tigner and Larsen (1977) determine sheep and lamb losses to be 0.5% and 4.2%, respectively. Loss surveys conducted through questionnaires also indicate that predation is reduced when a predator damage management program is in place (Early 1974, Early et al. 1974, Neese et al 1976).

It is important to note that NEPA requires that information adequate to make an informed decision be considered. The EA cites approximately 309 scientific and technical references; it is also based on public comments on the proposed action that advocated or espoused a variety of viewpoints. The EA and this Decision clearly meet this requirement.

Consistency

Wildlife damage management is conducted on National Forest System and BLM lands consistent with MOUs and policies of APHIS-WS, the USFS and BLM, and the EA. Any work plans developed for wildlife damage management, pursuant to this Decision, will be consistent with the direction provided in the Land and Resources Management Plans (LRMPs) for the National Forest System lands in Nebraska and the Resource Management Plans (RMP) for the New Castle BLM District. On USFS and BLM managed lands, public safety and environmental concerns are adequately mitigated through work plans jointly developed by WS and the USFS or BLM. The USFS and BLM may, at times, restrict or modify predator damage management that affects public safety or resource values. All predator damage management will be conducted consistent with the ESA and the Section 7 Consultation with the USFWS.

The analysis in the EA demonstrates that Alternative 3 provides WS the best opportunity to meet the stated objectives with the lowest impacts on: 1) non-target species and 2) designated wildlife and T&E species. Alternative 3 best: 1) addresses the issues identified in the EA and provides the environmental safeguards for public safety, 2) balances the economic effects of livestock losses to USFS and BLM permittees and private land owners, and the concerns for the other multiple-use values of the USFS and BLM and 3) allows WS to meet its obligations to the NGPC, NDA and other cooperating agencies or entities. As a part of this Decision, the Nebraska WS program will provide all requesting cooperators and cooperating federal, state and local agencies with information on non-lethal management techniques proven to be effective for reducing predation.

Monitoring

The Nebraska WS program will provide the WS take of target and non-target animals to the NGPC to determine if the total statewide take is within allowable harvest levels as determined by the NGPC. Nebraska WS will also monitor its progress toward the objectives found in Chapter 1 of the EA, including Objective A-4 to monitor the implementation of producer used nonlethal techniques. Nonlethal actions employed by cooperators will be tracked using the WS MIS database once this capability is developed.

Public Involvement

Before development of the EA, about 260 letters were mailed to individuals and organizations identified as having an interest in WS issues. Notices of the proposed action, availability of the public involvement letter and availability of the Pre-Decisional EA were also published in six newspapers in Nebraska. A total of 28 comment letters or cards were received during the initial public involvement period and seven comment letters were received on the Pre-Decisional EA. These letters were reviewed to identify any additional substantive issues to be addressed.

Major Issues

The EA describes the alternatives considered and evaluated using the following issues as important to the scope of the analysis (40 CFR 1508.25).

1. Cumulative impacts on the viability of wildlife populations - the potential for WS' take of predators to cause long-term predator population declines, when added to other mortality.

2. Effectiveness and selectivity of damage management methods - the potential for WS' methods to take non-target animals, need for a wide variety of damage management methods, criteria for deciding methods to be used, and use of "preventive" damage management techniques.

3. Risks posed by damage management methods to the public and domestic pets.

4. Concern about WS' impacts on T&E species.

Alternatives That Were Fully Evaluated

The following alternatives were developed by the Multi-agency Team to respond to the issues. Three additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the alternatives on objectives and issues is described in the EA; below is a summary of the alternatives, objectives and issues.

Alternative 1. No Action - Continue the current Nebraska WS Program. The No Action Alterative was analyzed and used as a baseline for comparing the effects of the other alternatives as required by 40 CFR 1502.14(d). This alternative consists of the current program of technical assistance and operational IWDM by Nebraska WS on the Nebraska National Forest and associated Units, BLM, tribal, state, county, municipal, and private lands under *Cooperative Agreement* and *Agreement for Control* with Nebraska WS. Alternative 1 would not allow WS to meet three of the seven objectives for the program. The current program direction is primarily for the protection of livestock.

Alternative 2. No Federal Nebraska WS Program. This alternative would terminate the federal predator damage management program in Nebraska. Alternative 2 was not selected because WS is authorized and directeded by law and reaffirmed by a recent court decision to reduce damage caused by wildlife. This alternative would not allow WS to meet its statutory responsibility for providing assistance or to reduce wildlife damage. Alternative 2 would not allow WS to meet six of the seven objectives for the program; only the non-target species objective would be met. Alternative 2 violates the MOU between APHIS-WS and the USFS and BLM whereby the USFS and BLM mutually recognize that reduction of wildlife damage on USFS and BLM managed lands is important and may involve predator damage management to achieve land and resource management objectives.

Alternative 3. Integrated Wildlife Damage Management for Multiple Resources and Land Classes: (Proposed Alternative). This alternative would allow for predator damage management based on the needs of multiple resources (livestock, wildlife, property, and public health and safety) and would be implemented following consultations with the NGPC, NDA, federal agencies or tribes, as appropriate. This alternative would allow for a federal WS program to protect multiple resources on all land classes at the request of the land management agency or individual if a *Cooperative Agreement, Agreement for Control* and/or a work plan with Nebraska WS, as appropriate, are in place. Alternative 3 was selected because it best allows WS to meet the objectives described in the EA and is most consistent with the USFS LRMPs and BLM RMPs. Alternative 3 conforms to the MOUs between WS, the USFS and BLM that mutually recognize that the reduction of wildlife damage on USFS and BLM lands is important and may involve predator damage management to achieve land and resource management objectives. Alternative 3 would allow WS to meet seven of the seven objectives for the program. Analysis of Alternative 3 indicated a low level of impact for the target species, non-target species and T&E species.

Alternative 4. Nonlethal Damage Management Required Prior to Lethal Control. This alternative would require that nonlethal damage management be implemented before the initiation of lethal predator damage management by Nebraska WS. This alternative was not selected because no standard exists to determine diligence in applying nonlethal methods nor are there any standards to determine how many nonlethal applications are necessary before initiation of lethal damage management. WS is authorized and directed by law to reduce damage caused by wildlife and this was reaffirmed in a recent court decision (U. S. District Court of Utah 1993). Consideration of wildlife protection is not included with the non-lethal methods currently available nor could WS base control strategies on the needs of designated wildlife. Alternative 4 would only allow WS to meet five of the seven objectives described in the EA. Alternative 4 would not allow WS to: 1) respond to all requests, 2) reduce predation to sheep, lambs and calves to objective levels or below, 3) assist the NGPC or USFWS in meeting wildlife management objectives, and 4) immediately address public health and safety requests.

Alternative 5. Corrective Damage Management Only. This alternative would require that verified livestock depredation occur before the initiation of lethal damage management. No preventive lethal damage management would be allowed. This alternative would not allow for any preventive damage management and management could only be implemented after the onset of losses. Alternative 5 was not selected because it: 1) is often difficult to remove offending predators quickly enough to prevent further losses once predation has begun, 2) does not allow WS to meet

the objectives described in the EA, and 3) does not allow WS to meet its statutory directives. WS is authorized and directed by law to minimize damage caused by wildlife and this was reaffirmed by a recent court decision (U. S. District Court of Utah 1993). The alternative would delay management of problem wildlife while verification of losses occurred and management actions could be implemented. Alternative 5 would not allow WS to meet five of the seven objectives. Alternative 5 would not allow WS to: 1) respond to all requests, 2) reduce predation to sheep, lambs and calves to objective levels or below, 3) assist the NGPC or USFWS in meeting wildlife management objectives, and 4) immediately address public health and safety requests.

Alternative 6. Technical Assistance Only. Under this alternative, Nebraska WS would not conduct operational predator damage management in Nebraska. The entire program would consist of only technical assistance and all operational wildlife damage management in Nebraska would be eliminated. Alternative 6 was not selected because it was inconsistent with USFS and BLM policy, and it is likely the USFS and BLM could not meet their management guidelines. Alternative 6 would not allow WS to meet six of the seven objectives. Alternative 6 would not allow WS to: 1) respond to all requests, 2) reduce predation to sheep, lambs and calves to objective levels or below, 3) monitor the implementation of producer used non-lethal methods, 4) assist the NGPC or USFWS in meeting wildlife management objectives, 5) design a wildlife damage management program with NGPC and USFWS input, and 6) immediately address public health and safety requests.

Alternatives Considered but not Analyzed in Detail are the Following:

The Humane Society of the United States Alternative - The Humane Society of the United States proposed an alternative that requires: 1) "*permittees evidence sustained and ongoing use of nonlethal/husbandry techniques aimed at preventing or reducing predation prior to receiving the services of the ADC Program*," 2) "*employees of the ADC Program use or recommend as a priority the use of appropriate nonlethal techniques in response to a confirmed damage situation*," 3) "*lethal techniques are limited to calling and shooting and ground shooting, and used as a last resort when use of husbandry and/or nonlethal controls have failed to keep livestock losses below an acceptable level*," and 4) "*establish higher levels of acceptable loss levels on public lands than for private lands*."

Defenders of Wildlife Alternative - The Defenders of Wildlife proposed an alternative that requires: *1) "use of lethal methods only after the onset of depredation occurs and only once all practical non-lethal controls have been attempted and shown to be ineffective at meeting the program goals, 2) same as above, but with lethal controls initiated only once the level of predator damage to livestock has surpassed a specified threshold of damage. This threshold would be higher on public lands than on private lands, and 3) a policy by which livestock producers who use non-lethal controls receive priority service from ADC when they do experience loss, and/or policy whereby livestock producers who have chronic losses yet do not utilize non-lethal approaches or best management practices do not qualify for ADC services. These policies would provide an incentive for producers to use the best available management practices."*

Biodiversity Associates and Friends of the Bow Alternative - The Biodiversity Associates and Friends of the Bow proposed an alternative that requires: *1) "Require livestock owners to implement non-lethal methods as a condition of ADC support,"* and *2) "conduct no ADC activities on private lands; include economic analysis of costs to taxpayers of ADC work on private land."*

The components of these alternatives have been analyzed in the issues discussion in Chapters 2 and 4, in the alternatives contained in this EA, and through court rulings. WS is authorized and directed by Congress to protect American agriculture, natural resources, property, and to safeguard public health and safety, despite the cost of damage management, and it is program policy to aid each requester to minimize losses. Additionally, wildlife damage management is an appropriate sphere of activity for government programs, since wildlife management is a government responsibility. The protection of resources will always be conducted by someone; a federal WS program not only provides a service to the livestock producers but also protects property, natural resources, and public health and safety and conducts an environmentally and biologically sound program in the public interest (Schueler 1993). Further, in the Southern Utah Wilderness Society et al. vs. Hugh Thompson et al. U.S. Forest Service (U.S. District Court of Utah 1993), the court clearly states that, "*To establish need for an ADC, the forest supervisors need only show that damage*

from predators is threatened." In other words, it is not necessary to establish a criterion, such as requiring implementation of nonlethal methods, to justify the need for wildlife damage management. WS' activities on private lands are carried out only after the landowner/lessee has requested services from WS and after an *Agreement for Control* has been signed. This agreement stipulates which methods may be used on the property.

The issues and alternatives selected for analysis in this EA include the suggestions in the above proposed alternatives. It is believed that inclusion of these alternatives would not contribute new information or options for consideration and analysis that are not already being considered and available in IWDM as used by WS.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Predator damage management, as conducted by WS in Nebraska, is not regional or national in scope.

2. The proposed action would pose minimal risk to public health and safety.

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to predator damage management, this action is not highly controversial in terms of size, nature, or effect.

5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed predator damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.

6. The proposed action would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The number of animals taken by WS, when added to the total known other take, falls well within allowable harvest levels.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.

9. An informal Section 7 consultation with the USFWS confirmed that the proposed action would not likely adversely affect any T&E species.

10. The proposed action would be in compliance with Federal, State, and local laws imposed for the protection of the environment.

Decision and Rationale

I have carefully reviewed the EA and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 3 (Integrated Wildlife Damage Management for Multiple Resources and Land Classes - Proposed Alternative in the EA) and applying the associated mitigation and monitoring measures discussed in Chapter 3 of the EA. Alternative 3 would provide the greatest effectiveness and selectivity of methods available, the best cost-effectiveness, and has the potential to even further reduce the current low level of risk to the public, pets, and T&E species. WS will continue to use currently authorized wildlife damage

management methods in compliance with the applicable mitigation measures listed in Chapter 3 of the EA. I have also adopted the Pre-Decisional Nebraska WS *Predator Damage Management in Nebraska for the Protection of Livestock, Wildlife, Property, and Public Health and Safety* as the final. Most comments identified from public involvement were minor and did not change the analysis.

For additional information regarding this decision, contact James Luchsinger, USDA-APHIS-WS, P.O. Box 81866, Lincoln, Nebraska 68501-1866, telephone (402) 434-2340.

Michael V. Worthen, Director
APHIS-WS Western Region

10-5-99
Date

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